

REMARKS

Claims 1-14 were pending in the application. Claims 1 and 9 have been amended, claims 13 and 14 have been canceled. No new matter has been added.

Figure 3 has been objected to as failing to comply with MPEP §608.02. Applicants respectfully traverse. Figure 3 illustrates an embodiment of the invention in which the Thévenin equivalent is of the electrical network as determined by the steps of claim 1 (see page 10, line 9-page 12, line 7 of Applicants specification). Therefore, Figure 3 is not merely an illustration of the Thévenin equivalent of any network, but a network derived from the steps of claimed method, and as such is not prior art. Accordingly, this objection should be withdrawn.

Claims 1-14 have been rejected under 35 U.S.C. §101 as allegedly being drawn to non-statutory subject matter. Claims 1, 9 and 10 have been rejected under 35 U.S.C. §103(a) as being obvious over *Rehtanz et al.*, (U.S. Patent Application Publication No. 2003/0040846). Claims 2, 4 and 7 have been rejected under 35 U.S.C. §103(a) as being unpatentable over the combination of the *Rehtanz et al.* Publication further in view of U.S. Patent No. 5,198,746 to *Gyugyi et al.* Claim 6 has been rejected under 35 U.S.C. §103(a) as being unpatentable over the combination of the *Rehtanz et al.* further in view of U.S. Patent No. 3,883,724 to *Pradhan et al.* Claim 3 has been rejected under 35 U.S.C. §103(a) as being unpatentable over the combination of the *Rehtanz* publication, the *Gyugyi* patent and further in view of U.S. Patent No. 6,476,521 to *Lof et al.* Applicants respectfully traverse these rejections.

As illustrated in Applicants' Figure 6, disclosed is a method for determining an equivalent impedance of a transmission section 4 of an electrical network. The transmission section 4 is represented as having at least two interfaces (5, 6) with other sections of the network. For each interface (5, 6), a voltage phasor and a current phasor flowing through the interface are determined from simultaneously made measurements at the interfaces (5, 6). From the phasors, the equivalent impedance is calculated. Simultaneous phasor measurements are achieved by measuring by means of at least two synchronized phasor measurement units residing at each of the at least two interfaces. The phasor measurement units are synchronized via a global positioning system as described at page 9, third paragraph of the specification.

The *Rehtanz* publication, commonly assigned to the assignee of the present application, is concerned with the prediction of the stability of an electric power network as illustrated by reference numeral 1 in Figure 1. An estimated steady state behavior of a load (6) connected to the electrical power network (1) enters into a load flow calculation for determining a steady state behavior of the electric power network (1). As described in paragraph [0032] of the *Rehtanz* publication, the behavior of neighboring networks connected to the network (1) under consideration beyond (i.e., on the far side of) the interfaces (8) is modeled by certain relationships that likewise enter the load flow calculation.

The *Rehtanz* publication discloses one or more phasor measurement units (7) that are at the buses or feeders, and that are associated with a load (6) connected to the feeder (paragraphs [0024] and [0036], step 31 of Figure 3). The phasor measurement units are used for measuring a voltage and a power flow to determine the estimated steady state behavior of the load (6) (see paragraph [0065]).

Accordingly, the phasor measurement units in the *Rehtanz* publication (do not provide phasors at or through the interfaces of an electrical network, but) are phasors at the feeders connected to loads within the electrical network.

In addition, the *Rehtanz* publication discloses an embodiment wherein at least one phasor measurement unit is provided (paragraph [0024]) with phasor measurement units being provided at about each third or fourth station (paragraph [0026]). Thus, in an embodiment, a single phasor unit is deemed sufficient in the system of the *Rehtanz* publication.

There is no specific disclosure in the *Rehtanz* publication of at least two phasor measurement units residing at each of at least two interfaces, as recited in Applicants' independent claim 1. The *Rehtanz* publication is not specifically directed to computing a present impedance of a transmission section of an electrical power network. For at least the above reasons, claims 1, 9 and 10 are allowable.

The *Gyugyi* patent does not disclose or suggest the claimed feature of measuring, by means of at least two synchronized phasor measurement units residing at each of the at least two interfaces, a voltage phasor at the interface and phasor of a current flowing through the interface, the measurements at the different

interfaces being made essentially simultaneously as recited in independent claim 1.

As such, claim 1 is allowable over the *Rehtanz* and *Gyugyi* documents

The *Pradhan* patent and the *Rehtanz* publication, either individually or in combination, fail to disclose or suggest measuring, by means of at least two synchronized phasor measurement units residing at each of the at least two interfaces, a voltage phasor at the interface and a phasor of a current flowing through the interface, the measurements at the different interfaces being made essentially simultaneously as recited in independent claim 1. Therefore, this rejection should be withdrawn.

The *Rehtanz* publication, the *Gyugyi* patent and the *Lof* patent, either individually or in combination, do not disclose or suggest all of the features recited in independent claim 1. For instance, these documents do not disclose or suggest measuring, by means of at least two synchronized phasor measurement units residing at each of at least two interfaces a voltage phasor at the interface and a phasor of a current flowing through the interface, the measurements at the different interfaces being made essentially simultaneously as recited in independent claim 1.

The 35 U.S.C. §101 rejection of claims 1-14 is also traversed. Claim 1 recites, among other features, displaying changes in the equivalent circuit based on the computed values of impedances. The display of the changes in an equivalent circuit is a tangible, concrete result, thereby complying with the statute.

This limitation, which was previously recited in now canceled claim 13, was subject to an objection under 37 C.F.R. §1.75(d)(1) as failing to provide antecedent basis for the feature of displaying changes in the equivalent circuit based on computed values of impedances.

The specification, for example, at page 8, lines 17-20, page 11, line 14 to page 12, line 7, and Figure 7, provides antecedent basis for the claimed subject matter.

For instance, page 8, lines 17-20 and page 11, line 14 to page 12, line 7, describes that stability analysis can be carried out analytically and various stability indicators may be calculated using well-known methods. Figure 7 illustrates an example of trajectories over the time t of Thévenin impedance in relation to the load impedance and Thévenin source voltage, which shows a step change in the

Thévenin source voltage indicating approaching electrical network instability. The disclosure of well-known features of a computer, which is used to implement the disclosed method, in combination with at least the cited text and Figure 7, provide support for the structure and step of displaying the results of the claimed method.

Accordingly, claim 1 is supported by Applicants' specification, and the 35 U.S.C. §101 rejection should be withdrawn.

As for the objection to the subject matter of the claim under 37 C.F.R. 1.75(d), Applicants respectfully submit that the specification provides the necessary antecedent basis such that one of ordinary skill in the art would have understood that the Applicant had possession of the claimed method and that one of ordinary skill in the art would be able to make and use the claimed method.

Should any questions arise in connection with this application, or should the Examiner believe a telephone conference would be helpful in resolving any remaining issues pertaining to this application, the undersigned respectfully requests that he be contacted at the number indicated below.

Respectfully submitted,

BUCHANAN INGERSOLL & ROONEY PC

Date: October 16, 2006

By:



Martin E. Miller

Registration No. 56022

P.O. Box 1404
Alexandria, VA 22313-1404
703 836 6620